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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINESWEEPING WITH AN INSECT-COLLECTING NET TO DETERMINE
WHEN AND WHERE TO DUST FOR PEA WEEVIL CONTROL

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The farmer who dusts to control the pea weevil can do an effective job only if he has some knowledge of the number of weevils present and where they are located in his fields. He must know if they are numerous enough to warrant the expense of dusting, and he will certainly be interested in checking the control after dusting and in determining whether a later dusting is necessary. This information can be readily obtained only by sweeping the peas with an insect-collecting net.

Description of the Net

A net of the type used successfully in the northwestern pea-growing areas is shown in figure 1. This net consists of a hard-wood handle 40 inches long, a hoop 15 inches in diameter made of No. 9 spring steel, a metal ferrule 4 inches long which fits over the handle and holds the steel hoop firmly in place, and a collecting bag made of a durable grade of curtain scrim. The parts of the net are assembled as shown in the figure. The hoop should fit tightly; one that wobbles at the end of the handle catches fewer weevils and is less easy to use.

Other materials may be used, but the ones listed have proved the most satisfactory.

How to Use the Net

The net is swung through the peas in front of the sweeper in an arc about 4 feet long and dipped down into the vines about 8 or 10 inches. The lower edge of the hoop should be an inch or two in front of the upper edge so that weevils which drop from the vines are scooped up. Each stroke across the vines is called a "sweep." A step or two is taken after each sweep; that is, the sweeper walks as he swings the net. Sufficient force should be put into each sweep so that the tips of a few vines are collected in each 25 sweeps.

How to Sample the Weevil Population in the Field

The amount of sweeping needed to obtain the necessary information for the effective use of control measures depends upon the size of the field and the infestation that can be tolerated in the final product. Fields up to 10 acres in size usually should be dusted completely if weevils are found in numbers sufficient to warrant treatment in any portion. Larger fields should be surveyed carefully in order to determine where to dust. The green-pea field must be kept as nearly weevil-free as possible, but it may not be economically practical to dust an entire seed-pea field with a very light infestation.

The method of sampling may be outlined as follows: Go into the field in several places on each of the four sides. If the field is irregular in shape, sweep at intervals of at least every quarter mile around it. Make two or more 25-sweep collections at each place swept; examine the catch and count or estimate the number of weevils in each collection. After the population at any point along the edge has been determined and if it is a green-pea field, start at the edge and sweep at intervals toward the center until no more weevils are found. On the other hand, if it is a seed-pea field, examine toward the center until the weevil population drops below the number for which it is considered profitable to dust.

If large populations are present, the number of sweeps and the number of localities swept can often be reduced. But if no weevils or very few weevils are collected, the surveyor should sample more carefully, for the distribution of the weevil may be very scattered. A weevil-free area along one side of a field or sometimes even around the entire field may not mean that the central portions are also weevil-free.

It is advisable to follow a systematic procedure in making the survey in order that portions of the field may not be overlooked. A record of the sweepings made and the number of weevils collected should be made and kept for future reference. A record sheet of the type used for large fields by several operators in the Northwest is shown in figure 2.

When to Sample Weevil Populations

Sweep in the field first before dusting is necessary; that is, soon after the first blooms appear and before pods form. The effect of control operations may be determined by sweeping in a similar manner 18 to 24 hours after dusting. Once control measures have been applied, sampling should be continued at 3- to 4-day intervals to determine if any reinestation occurs. Many good control jobs have been nullified by the failure of the operators to redust reinfested areas.

Weevil Populations and Resulting Infestations

The infestation at harvest resulting from the presence of a given number of weevils, as determined by sweeping with a collecting net, varies greatly in different fields and depends on the stand of peas, weather conditions, and other factors. The same number of weevils, as determined by sweeping, results in a greater infestation in the later fields than in the early fields. Very roughly, approximately the following infestations may be expected from an average population of 1 weevil in 25 sweeps in the Palouse and Blue Mountain areas of Idaho, Washington, and Oregon:

Variety	Percent of infestation
Early varieties harvested for the cannery	1
Midseason and late varieties harvested for the cannery	7
Alaska peas harvested for seed	3

INSECT NET

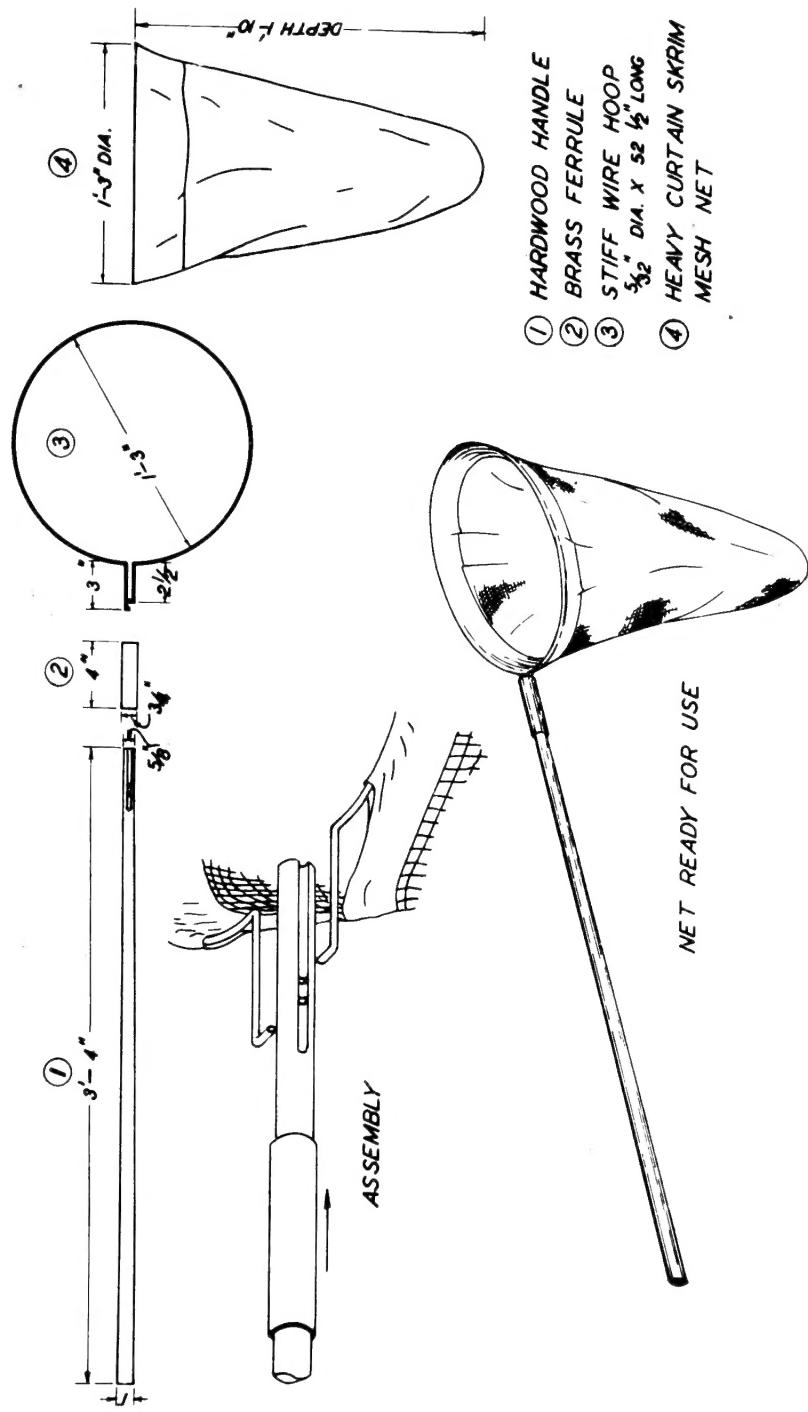


Figure 1.—Details of an insect-collecting net used in determining pea weevil populations.

RECORD-WEEVIL COUNTS By _____

(Date of count) _____ (Name of grower) _____

(Variety) _____ (Field location) _____

(Time of count) _____ (Weather condition) _____

Count Made:

(Check one only)

- (1) before dusting
- (2) after dusting
- (3) before 2nd dusting
- (4) after 2nd dusting

Peas in:

- (Check) (1) Early bloom. No pods.
- (one) (2) Full bloom. Few pods.
- (only) (3) Full bloom. Many pods.

WEEVIL COUNTS: NUMBER IN 25 NET SWEEPS.

Side of Field	Approximate feet from field edge.				
	Border - 90	150	200	270	- Center
1					
2					
3					
4					
1					
2					
3					
4					
1					
2					
3					
4					
1					
2					
3					
4					

Sketch map of field on reverse of page.

Figure 2.--A page from a field notebook designed for recording weevil populations determined by sweeping with an insect-collecting net.

